DOCUMENT RESUME

ED 360 953 IR 016 182

TITLE	National Education Association Communications Survey. Report of Findings.
INSTITUTION	Princeton Survey Research Associates, NJ.
SPONS AGENCY	National Education Association, Washington, D.C.
PUB DATE	2 Jun 93
NOTE	93p.
PUB TYPE	Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Educational Technology; *Elementary School Teachers; Elementary Secondary Education; Incidence; Microcomputers; Reprography; Retrenchment; *Secondary School Teachers; Tables (Data); Teacher Attitudes; *Technological Advancement; Telephone Surveys; Television; Use Studies; Videotape Recorders
IDENTIFIERS	*Access to Computers; National Education Association; Teacher Surveys

ABSTRACT

A national telephone survey of 1,206 regular education teachers was conducted on behalf of the National Education Association to determine the incidence of school-provided educational technology and to assess teacher perceptions of their effects on the education process. Some forms of technology, such as photocopiers, television, and videocassette recorders, were found to be almost universally available. Roughly 9 in 10 teachers have access to computers, but other electronic hardware has not become standard. Less than half of the teachers have access to a modem at school, and less than one-third have access to a fax machine. Most teachers lack easy access to a telephone during the school day. Schools are slow to replace outmoded technologies, such as mimeographs and dittos. A high technology environment is more likely for affluent and suburban schools. Large city schools are more backward technologically than schools in small town and rural America. In elementary school grades, computers tend to be distributed in individual classrooms, but in higher grades they are likely to be concentrated in laboratories. Sizable proportions of teachers lack access to technologies they believe to be essential resources, with the most serious obstacle being budgetary limitations. Twenty-four tables present study findings. Two versions of the questionnaire are included, and a technical appendix describes the study methodology. (SLD)

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ED 360 953

National Education Association Communications Survey

Report of the Findings

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Technology in the Classroom:
A Teacher Perspective

Introduction

This is a report on the results of a national telephone survey of regular classroom teachers conducted by Princeton Survey Research Associates on behalf of the National Education Association. This is the first study to focus on in-school use of a broad range of technological tools in the same survey. The primary objectives of the study were to both determine the incidence of school-provided technologies and to assess teacher perceptions of their effects on the education process.

The Technical Appendix of this report includes a description of the survey methodology, a definition of the access to technology scale used for analysis, a "top-line" summary of question-by-question results and a copy of the questionnaire.

SURVEY HIGHLIGHTS

* Some forms of technology are now almost universally available to teachers: nearly all have access to photocopiers (97%), televisions (95%) and VCRs (98%) for classroom use at the school site. Roughly nine in ten (88%) have access to computers at school. Other electronic hardware, however, has yet to become standard equipment in schools. Less than half of teachers (43%) are able to use a modem at school, while less than a third (28%) have access to a fax machine.

* Computers are installed in about half (52%) of classrooms today. Television sets are found in four in ten classrooms (41%). Unlike most other professionals, however, most teachers lack easy access to a telephone during their work day: only 12% now have phones in their classrooms.

* Schools have been slow to replace outmoded technologies. Close to two-thirds of teachers (65%) report that mimeograph or "ditto" machine are still being used in their schools.

* Teachers in affluent and suburban schools are more likely to work in a high-tech environment. Schools on the cutting edge in terms of technology typically provide both computers in the classroom and access to modems and fax machines at the school site.

* Worst off in terms of access to technology at school are teachers in urban schools and less affluent school districts. In fact, large city schools are more backward technologically than schools in small town and rural America.

* Schools unable or unwilling to provide teachers with computers may be failing to tap a valuable resource: computer skills that teachers have acquired on their own. Fully half of teachers (50%) in low-tech schools say they have a home computer.

- Copying materials for classroom instruction is a struggle for many teachers, especially those in urban areas and less affluent communities. As a result of school restrictions on their paper supply for copying, one-fifth of all teachers (19%) and high proportions of those in large cities (34%) and low-income school districts (28%) have used personal resources to meet their classroom duplicating needs.

- In terms of computer technology, access to modems distinguishes the "haves" from the "have-nots". Just over half (53%) of teachers in high-income school districts have access to a modem, compared with fewer than a third (30%) of those in low-income districts. By comparison, these two groups are about equally likely to report having computers in the classroom.

- In the elementary grades, computers tend to be distributed on a one-per-classroom basis and are regarded as an integral part of the learning process. In the higher grades, computers are more often distributed in clusters, and are still regarded as a separate area of instruction.

- TV sets in the classroom are associated with neither high-tech schools nor wealthier schools. In fact, teachers in the suburbs and in high-income communities are less likely than other teachers to say they have a set in their own classroom. In the Southeast and Mid-Atlantic regions, the average teacher has a TV set in the classroom; in other regions, the average teacher must share a set with other teachers.

- The absence of telephones in the classroom makes it difficult for many teachers to have confidential phone conversations with parents or others during the school day. Most of those without a classroom telephone use the phone in the school office for outside calls. Almost half of these teachers (44%) say that the phone they depend on does not allow for private communication.

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- On-line computer databases and networks are an emerging technology in the schools. Only about one in five teachers with access to a modem (19%) has access to Prodigy, the most widely used on-line service. Just 10% of all teachers report having used modem or fax technology to exchange instructional information. Still fewer teachers have participated in a learning network (6%) or on-line collaborative teaching/distance learning project (4%) with their students. Only 4% have access to Internet -- the computer "network of networks" -- at school.

* Considering the major categories of computer software and electronic media, teachers make the most use of word-processing software (79%) and graphics software (56%). Less than half of all teachers, but a majority of those teaching math or science, have used spreadsheet software and software to calculate grades. About one in four teachers have used each of the following technologies: instructional laser discs/videodiscs (27%), CD-ROM discs (25%) and hypermedia/multimedia software (23%).

* Teacher perceptions of the importance of various technologies to classroom effectiveness largely reflect the status quo. Only one type of equipment is overwhelmingly thought to be essential: photocopiers with adequate paper supplies (84%). Access to TV/VCR combinations and classroom computers are widely seen as important, but teacher opinion is split on whether they are essential. Access to telephones in the classroom and on-line computer services at school are generally regarded as important, but not essential. Less than half (40%) of teachers believe access to fax machines is important or essential.

* There are sharp differences by generation in attitudes toward the importance of putting a computer in every classroom. Six in ten teachers under 35 years of age (59%) believe computers in the classroom are essential. But that figure decreases steadily with age, slipping to 29% among teachers over age 55.

* Sizable proportions of teachers currently lack access to technologies they believe are essential resources. The most widespread unsatisfied technological need is access to a TV/VCR combination (31%) followed by classroom telephones (24%), on-line computer networks (18%) and classroom computers (16%). Most seriously deficient in the most basic technology are urban schools. Three in ten teachers in large city schools (28%), compared with about one in ten (11%) in suburban schools, identify insufficient access to a photocopier as an unmet technological need.

* More technologically sophisticated schools are associated with a higher quality of education, better parent-teacher communication and greater student interest in learning. In the least technologically sophisticated schools, teachers consider insufficient technology as important an obstacle as inadequate preparation time and overly large class sizes.

- Roughly a third of teachers overall (31%) and half of those in high-tech schools (49%) believe that their own teaching effectiveness has improved "very much" as a result of technology. Only three teachers in ten (28%) do not think technology has made much of a positive impact on their performance in the classroom. Specifically, teachers credit technology with helping them more efficiently carry out routine aspects of their job, such as preparing written materials and record-keeping.

- Budgetary limitations are by far the most serious barrier to teachers' ability to make better use of classroom computer technology. Half of teachers interviewed (46%) cited money as "very much" an obstacle. Other potential obstacles are considered major by only one teacher in five: insufficient wiring in the school building (21%), lack of software (19%), unfamiliarity with computers (18%) and lack of technical support (18%).

- A majority of teachers (63%) believe it is essential that teachers and parents be able to contact each other during the school day. While most teachers do not now regard classroom telephones as essential, a large majority (71%) acknowledge that having a phone in every classroom would improve parent-teacher communication to some extent; more than a third believe it would result in a major improvement in communication.

- Female teachers, younger teachers, those in elementary schools, smaller schools and urban schools are the biggest advocates of telephones in the classroom.

DETAILED FINDINGS

Access to Technology at School

While some types of electronic technology are universally available to teachers today, others have yet to become standard equipment in public schools. Virtually all teachers have access to a photocopier (97%), but only three in ten (28%) are able to use a fax machine, a fixture in today's office environment, at their workplace.

In the classroom itself, half of teachers (52%) now have a computer, while four in ten (41%) have a television set. Fewer report having a cable TV hookup (34%) or a classroom VCR (24%). While not present in every classroom, these instructional resources are widely available to public school teachers. Roughly nine in ten teachers (88%) have access to computers at school; even higher proportions have access to televisions (95%) and VCRs (98%). More than six in ten (62%) say their school gets cable TV.

In most schools today, the technologies of the past have not been completely replaced by newer technologies. Despite the prevalence of photocopiers, as many as two in three teachers (65%) report that mimeograph or "ditto" machines are still being used at school.

Both the high-tech computer modem and the ordinary telephone are absent from most classrooms. Very few teachers have a computer modem in their classroom (4%), although four in ten (39%) say they can use a modem somewhere at the school site. Only 12% of teachers have a telephone in their classroom; hardly any teachers (1%) have a classroom telephone equipped with voice mail.

Based on their responses to a series of questions measuring access to 10 types of technology, most teachers work in the "medium-tech" environment described above: Computers are generally available at the school site, if not in the classroom; TVs and VCRs are widely available, while modems and fax machines are generally unavailable. (NOTE: For a description of the way the scale measuring access to technology was created, see Technical Appendix.) The remaining one-third of teachers divide almost equally between a high-tech (15%) and a low-tech school environment (18%).

Those who teach in high-tech schools typically have computers in their classrooms (82%) and access to fax machines (69%) and modems (94%) at the school site. Even in high-tech schools, however, telephones in the classroom are the exception, not the rule (33%). High-tech environments are most likely to be found at the senior high level, as well as in larger schools, suburban schools and in more affluent school districts.

Those who teach in low-tech schools generally have televisions (76%) and VCRs (97%) at their disposal, but are highly unlikely to have a computer in the classroom (9%), or access to a fax machines (8%) or modem (6%). Only about half of these technologically disadvantaged teachers (51%) are able to use a computer at any location on the school site. As expected, low-tech environments are more prevalent in lower income school districts. Low-tech schools are more often found in large cities than in small town and rural communities.

Schools unable to provide adequate technology for classroom instruction may be failing to take advantage of skills teachers have already acquired on their own. More than half of regular classroom teachers (54%) have a home computer. Teachers in low-tech school environments are almost as likely to have a personal computer at home as teachers in more technologically sophisticated schools.

TABLE A

Technologies Available at School or Home:

Access to Technology

	Total %	High %	Medium %	Low %
Has Access At School				
Photocopier	97	100	98	90
Mimeo/ditto machine	65	60	65	66
Fax machine	28	69	24	8
Computer				
In classroom	52	82	57	9
Other school location	36	18	38	42
At home	54	60	53	50
Modem (With Computer)				
In classroom	4	20	2	*
Other school location	35	74	34	6
TV				
In classroom	41	49	43	28
Other school location	54	51	56	48
VCR				
In classroom	24	36	23	18
Other school location	74	63	75	79
Cable TV				
In classroom	34	44	35	15
Other school location	28	43	28	10
Number of Interviews	(1206)	(183)	(806)	(217)

TABLE B

Access to Technology is:

	High %	Medium %	Low %	Number of Interviews
Total	15	67	18	(1206)
Level of Assignment				
Elementary	11	72	17	(632)
Middle/Jr. High	15	64	21	(282)
Senior High	23	61	16	(329)
Size of School				
Large	19	61	20	(424)
Medium	11	69	20	(391)
Small	14	71	15	(388)
Size of Community				
Large city	16	61	23	(141)
Suburb	20	60	20	(282)
Small city/town	14	69	17	(491)
Rural area	11	73	16	(287)
Community Served				
Upper/higher income	25	62	13	(333)
Lower middle income	11	70	19	(570)
Low income	11	66	23	(246)
NEA Region				
Northeast	17	68	15	(205)
Southeast	13	68	19	(149)
Mid-Atlantic	14	69	17	(161)
Mid-West	18	66	16	(282)
Pacific	12	69	19	(245)
West	16	61	23	(164)

Duplicating Technologies

Since nearly all schools (97%) now have photocopying equipment, there is only slight variation in access by type of school or community. Low-tech mimeograph or "ditto" machines, however, are most often found in elementary schools, in large city schools and in schools located in the Mid-Atlantic region. These old-fashioned workhorses of the educational system remain in service in almost two-thirds (65%) of schools across the U.S.

TABLE C

Have Access at School:

	Photo-copier %	Mimeo/ Ditto %	Number of Interviews
Total	97	65	(1206)
Level of Assignment			
Elementary	96	70	(632)
Middle/Jr. High	97	60	(282)
Senior High	98	56	(329)
Size of Schools			
Large	96	62	(424)
Medium	97	65	(391)
Small	98	66	(388)
Size of Community			
Large city	92	75	(141)
Suburb	98	58	(282)
Small city/town	97	66	(491)
Rural area	97	63	(287)
Community Served			
Upper/higher income	98	61	(333)
Lower middle income	97	65	(570)
Low income	94	68	(246)
NEA Region			
Northeast	99	54	(205)
Southeast	97	67	(149)
Mid-Atlantic	94	77	(161)
Mid-West	97	62	(282)
Pacific	96	69	(245)
West	98	57	(164)

While most teachers have access to both photocopiers and mimeograph/"ditto" machines, photocopying is clearly the duplicating process of choice: 81% of teachers say they use only photocopiers for classroom duplicating or use them most often. Faced with copying tasks, four in ten teachers (40%) receive no assistance in duplicating materials at the school. Only one teacher in five (19%) has help with nearly all necessary classroom copying. Waiting time to use a copy machine is a problem for nearly four in ten teachers (38%).

One-third of teachers (35%) say the availability of paper for classroom duplicating is limited by the school. One teacher in ten (10%) complains that restrictions on the paper supply are too severe. Because of school limitations on paper, nearly one teacher in five (19%) has paid out-of-pocket for paper or found other ways to have copies made for his or her students.

Teachers are more likely to have assistance with copying tasks in the lower grades, in smaller schools, and in smaller and wealthier communities. Teachers in the Midwest (68%) or West (65%) are most likely to have help, while those in the Northeast (53%) and Pacific regions (56%) are least likely to receive assistance with copying.

Excessive waiting time to make copies, school limits on paper, and the use of personal resources for classroom duplicating needs are more often associated with certain types of schools. These problems occur most often at the elementary school level, in larger schools, and in schools serving large cities and low-income communities.

TABLE D

Duplicating Process Experience:

	Someone Assists %	Problems With Waiting %	School Limits Paper %	Used Own Money %	Number of Interviews
Total	60	38	35	19	(1206)
Level of Assignment:					
Elementary	68	40	43	24	(632)
Middle/Jr. High	54	31	25	13	(282)
Senior High	48	38	28	16	(329)
Size of Schools					
Large	54	44	39	23	(424)
Medium	62	38	39	22	(391)
Small	66	31	27	13	(388)
Size of Community					
Large city	52	48	53	34	(141)
Suburb	59	39	34	19	(282)
Small city/town	64	35	39	20	(491)
Rural area	59	37	24	12	(287)
Community Served					
Upper/higher income	68	31	30	15	(333)
Lower middle income	59	38	35	18	(570)
Low income	52	44	42	28	(246)
NEA Region					
Northeast	53	42	25	12	(205)
Southeast	62	40	42	23	(149)
Mid-Atlantic	60	40	40	24	(161)
Mid-West	68	31	24	9	(282)
Pacific	56	41	50	31	(245)
West	65	29	35	19	(164)

Classroom Computers and Modem Access

Teachers with computers in their classrooms are more often employed at the elementary grade level and in smaller schools. The incidence of classroom computers -- 52% overall -- does not vary significantly by either community size or socioeconomic level. Among teachers who must use a school computer outside their own classroom, three in ten (28%) say waiting time to use a computer is a problem.

While teachers in more affluent schools are no more likely to have computers in their classrooms, those in elite schools are more apt to have access to modems on-site. Just over half (53%) of those in higher income districts are able to use a modem at school, compared with less than a third (30%) of those in low income districts. Those who teach at higher grade levels and in larger schools have greater access to modems.

Modems are a shared resource. Even in the most affluent schools, very few teachers have modems in their own classrooms. Four percent of all teachers interviewed and 6% of those in higher income school districts report having a classroom computer hooked up to a modem.

Slightly more than half (54%) of all teachers say they have a computer at home. Predictably, the incidence of home computers is highest among suburban teachers, those in wealthier communities and in the more high-tech Northeast and Pacific regions. Incidence of home computers increases by grade level taught and size of school; these relationships run in the opposite direction for incidence of computers in the classroom. Thus, while teachers in the higher grades and in larger schools are less likely to have classroom computers, they are more likely to have PCs at home.

Math and science teachers -- who might be expected to be more computer-oriented than their colleagues -- are the teacher subgroup most likely to have home computers (72%). Those who teach mathematics or science courses, however, are not significantly more likely than English and social studies teachers to say their school provides them with a classroom computer (40% vs. 37%).

TABLE E

Have Access to:

	Computer in Classroom	Modem at School	Computer at Home	Number of Interviews
	%	%	%	
Total	52	39	54	(1206)
Level of Assignment				
Elementary	62	36	49	(632)
Middle/Jr. High	38	42	52	(282)
Senior High	44	45	62	(329)
Size of Schools				
Large	42	44	62	(424)
Medium	54	40	50	(391)
Small	62	35	48	(388)
Size of Community				
Large city	54	38	56	(141)
Suburb	52	44	62	(282)
Small city/town	51	39	53	(491)
Rural area	54	37	46	(287)
Community Served				
Upper/higher income	52	53	57	(333)
Lower middle income	52	36	52	(570)
Low income	53	30	49	(246)
NEA Region				
Northeast	51	43	57	(205)
Southeast	56	32	42	(149)
Mid-Atlantic	46	44	52	(161)
Mid-West	56	40	54	(282)
Pacific	53	36	58	(245)
West	52	42	54	(164)

Overall, about half of teachers (49%) say that, in their own school, computers are integrated into the classroom learning process, while the other half (48%) say computers are located off-site and treated as a separate area of instruction. At the elementary grade level, a majority of teachers (61%) say computers have become an integral part of the learning experience. In the higher grades, majorities say computers have not been integrated into the classroom (59% of those in middle school/junior high; 61% of those in senior high).

While these findings might suggest that elementary schools have been quicker to join the computer revolution, they may simply reflect organizational differences between the lower and upper grades. In primary schools, where students spend most of their time in one teacher's classroom, computers tend to be distributed on a one-per-classroom basis. In secondary schools, where students frequently change classrooms, computers tend to be distributed in clusters -- leaving many classrooms with none.

Two-thirds of teachers in elementary schools (66%) have at least one computer in the classroom their students can use. By comparison, 39% of those at the middle school/junior high level and 43% of those teaching senior high have at least one classroom computer. Classrooms with more than one or two student-use computers, however, are more common in the higher grades. One in ten senior high school teachers (12%) has five or more classroom computers available for student use; this compares with only 3% of elementary school teachers.

TABLE F

Computers and Access for Students:

	Total %	Level of Assignment: Elementary %	Middle/ Jr. High %	Sr. High %
Computers have been:				
Integrated into classroom learning process	49	61	40	36
Treated as separate area of instruction	48	36	59	61
Don't know	3	3	1	3
Number of Computers for Student Use in Classroom				
More than 5	7	3	8	12
3-5	6	6	7	5
Two	7	9	8	3
One	34	48	16	23
None	41	30	54	51
Don't know	5	4	7	6
Number of Interviews	(1206)	(632)	(282)	(329)

Classroom Television Technologies

Overall two in five teachers (41%) have a television in their classroom. Classroom televisions sets are more common among those who teach in larger schools and at higher grade levels. TV sets in the classroom are not associated with high-tech environments or wealthier schools. In fact, teachers in suburban school districts and more affluent communities are less likely to report having a classroom set. (It should be noted, however, that nearly all teachers in all types of schools have access to a TV set at school for instructional use.)

There are sharp differences in incidence of classroom TV sets by geographic region. In the Southeast and Mid-Atlantic regions, most teachers have sets in their classrooms. In other regions, teachers tend not to have their own sets.

Classroom VCRs are reported by one-fourth (24%) of teachers overall, with little variation by grade level, community characteristics or size of school. Teachers in the Southeast and the West are most likely to have classroom VCRs. Teachers in the Northeastern region are least likely to have such easy access to this technology.

Teachers are more likely to have cable TV access in their classrooms than they are to have VCRs. One-third overall (34%) are now wired for cable. Incidence of cable hookups by subgroups follow the geographic patterns seen for classroom television incidence. Cable access is most common in smaller communities and in the Southeastern and Mid-Atlantic regions. It is significantly lower in the suburbs and in the Western and Pacific regions.

TABLE G

Have Access at School:

	In Classroom			Number of Interviews
	TV %	VCR %	Cable TV %	
Total	41	24	34	(1206)
Level of Assignment				
Elementary	36	24	32	(632)
Middle/Jr. High	47	24	36	(282)
Senior High	46	26	32	(329)
Size of School				
Large	46	25	34	(424)
Medium	44	25	36	(391)
Small	33	22	33	(388)
Size of Community				
Large city	40	20	32	(141)
Suburb	31	23	23	(282)
Small city/town	46	26	39	(491)
Rural area	44	25	37	(287)
Community Served				
Upper/higher income	37	27	32	(333)
Lower middle income	42	24	34	(570)
Low income	46	23	38	(246)
NEA Region				
Northeast	34	17	31	(205)
Southeast	62	30	42	(149)
Mid-Atlantic	57	23	47	(161)
Mid-West	31	22	31	(282)
Pacific	38	33	24	(245)
West	38	22	25	(164)

Classroom Telephones

The incidence of telephones in the classroom -- 12% overall -- is relatively low among all teacher subgroups, although there is some variation by school and community type. Teachers with phones in the classroom are more often employed at upper grade levels (19% for senior high), in larger schools, and in urban or suburban school districts. Classroom telephones are most prevalent in the Pacific region, where one teacher in five (22%) has one.

Voice mail technology is still quite rare in a classroom setting (1% overall).

TABLE H

Have Access at School:

	In Classroom		
	Telephone	With Voice Mail	Number of Interviews
	%	%	
Total	12	1	(1206)
Level of Assignment			
Elementary	9	1	(632)
Middle/Jr. High	14	2	(282)
Senior High	19	2	(329)
Size of School			
Large	16	1	(424)
Medium	13	1	(391)
Small	8	1	(388)
Size of Community			
Large city	16	2	(141)
Suburb	14	2	(282)
Small city/town	12	1	(491)
Rural area	10	1	(287)
Community Served			
Upper/higher income	14	1	(333)
Lower middle income	11	1	(570)
Low income	15	3	(246)
NEA Region			
Northeast	13	1	(205)
Southeast	7	-	(149)
Mid-Atlantic	7	1	(161)
Mid-West	13	2	(282)
Pacific	22	1	(245)
West	7	1	(164)

Teachers without the benefit of a telephone in their classroom most often use a telephone in the school office to make outside calls (42%). The second most common location for teachers to make outside calls is the faculty lounge (27%).

Teachers employed in less affluent communities are at a disadvantage in terms of their telephone access at school. In higher-income school districts, a majority (54%) of teachers without classroom telephones say they have access to a phone at school that allows for private conversations. In low-income school districts, only about a third (35%) say they can make outside calls in private. Even in low-income schools, however, very few teachers to are forced to rely on a pay phone for outside calls (3%).

Teachers without classroom telephones typically make outside calls from school at least several times a week. One-fifth of these teachers (21%) make calls several times a day and another six in ten (57%) make calls several times a week. This suggests clear obstacles to easy or confidential telephone communication for a large proportion of teachers -- even for those teaching in communities considered to be financially better off.

TABLE I

For Those Not Having Access to Telephone in Classroom:

		Community Served		
	Total %	Upper/ High Income %	Lower Middle Income %	Low Income %
Most Often Use Telephone in:				
School office	42	35	43	56
Faculty lounge	27	27	28	22
Co-worker's office/classroom	6	8	7	4
Library/media center	4	3	4	2
Own office	3	8	2	1
Most Often Used Telephone:				
Allows private conversation	44	54	42	35
Is a pay phone	2	2	1	3
This Telephone is Used:				
Several times a day	21	21	21	17
Several times a week	57	61	57	53
Once a week	14	11	13	18
Less often	8	7	8	12
Number of Interviews	(1056)	(285)	(508)	(210)

School Fax Machines

Fax machines are a technology yet to be introduced to most public schools. Three in ten teachers overall (28%) have access to a fax at school. Only in senior high schools does a majority of teachers (54%) have a fax machine at their disposal. Fax technology is most often available to teachers in large schools (39%), suburban schools (35%) and in those serving higher income communities (35%). Geographically, fax access is highest in the Midwest (34%), Northeast (32%) and Pacific regions (31%).

TABLE J
Have Access at School:

	Fax Machine %	Number of Interviews
Total	28	(1206)
Level of Assignment		
Elementary	16	(632)
Middle/Jr. High	29	(282)
Senior High	54	(329)
Size of Schools		
Large	39	(424)
Medium	20	(391)
Small	24	(388)
Size of Community		
Large city	24	(141)
Suburb	35	(282)
Small city/town	24	(491)
Rural area	31	(287)
Community Served		
Upper/higher income	35	(333)
Lower middle income	27	(570)
Low income	23	(246)
NEA Region		
Northeast	32	(205)
Southeast	23	(149)
Mid-Atlantic	22	(161)
Mid-West	34	(282)
Pacific	31	(245)
West	25	(164)

On-Line Databases and Information Networks

Schools are just beginning to make use of on-line computer services. Even teachers fortunate enough to have access to a computer with a modem at school (39% of those interviewed) tend not to be using the best-known on-line services. About one in five (19%) say they have access to Prodigy, the highest incidence level recorded for any of the four computer services included in the study. Second most common is Compuserv (14%), followed by Dialog (9%) and America-on-line (7%). Access to on-line computer services tends to increase with the grade level of the school. Other differences by teacher subgroups in access to specific on-line services may reflect varying availability or marketing strategies by suppliers.

TABLE K

Among Those With Access to Modem at School, Have Access To:

	Prodigy	CompuServ	Dialog	America On-Line	Number of Interviews
	%	%	%	%	
Total	19	14	9	7	(477)
Level of Assignment					
Elementary	13	12	7	5	(228)
Middle/Jr. High	22	13	12	7	(118)
Senior High	26	18	13	10	(148)
Size of School					
Large	27	15	9	10	(186)
Medium	14	14	3	4	(154)
Small	13	12	17	7	(136)
Size of Community					
Large city	27	17	12	14	(53)
Suburb	26	13	8	6	(125)
Small city/town	15	13	9	6	(189)
Rural area	15	14	10	8	(106)
Community Served					
Upper/higher income	22	13	9	7	(174)
Lower middle income	18	12	10	7	(202)
Low income	11	21	11	7	(73)
NEA Region					
Northeast	27	15	8	8	(89)
Southeast	15	4	-	4	(47)
Mid-Atlantic	21	13	7	4	(71)
Mid-West	13	13	9	10	(112)
Pacific	22	18	16	9	(89)
West	10	16	13	4	(69)

Although more sophisticated communication technology is becoming available in schools, very few teachers have ever exchanged instructional information with another teacher outside their own school via fax or modem. Those in upper grade levels are more likely to report such an information exchange, but even among senior high school teachers only 15% have ever used technology in this way.

Very few teachers at any grade level have ever participated in a learning network at school (e.g., The AT&T Learning Network or The National Geographic Society's Kids' Network). Fewer than one teacher in ten (6%) reports having ever had this experience. Only 4% report being currently engaged in on-line collaborative teaching or distance learning with their students.

In each of these areas, teachers in high-tech educational settings, as well as those having access to a modem in the classroom, are more likely to have participated in these computer-based educational activities. Even for those with the benefit of a high-tech environment, information networking is not a common experience.

TABLE L

Information Networking:

Level of Assignment

	Total %	Elementary %	Middle/ Jr. High %	Sr. High %	High Access Tech. %	Has Modem Access %
Ever Exchanged Instructional Information with Other Teacher Via Fax/Modem:						
From school	8	6	9	12	17	13
From home	1	1	1	2	1	1
Both	1	*	1	1	4	1
Ever Participated in Learning Network at School (Such as AT&T or Kid's Network)	6	6	7	6	16	10
Now engaged (with students) in on-line collaborative teaching or distance learning	4	4	3	5	9	7
Number of Interviews	(1206)	(632)	(282)	(329)	(183)	(477)

When asked directly about their familiarity with the Internet system of computer networks, about one in five teachers (22%) claims any familiarity with Internet. Only 4% of teachers reports having access to Internet at school. Both familiarity and access tend to increase with grade level (reaching 30% and 7%, respectively, among senior high teachers). Familiarity with Internet is higher among math and science teachers than it is among those in other subject areas. Teachers in schools high on access to computer technology are also more familiar with this computer network of networks -- and are more likely to say they have access to it.

TABLE M

Computer Network Awareness and Access:

	Total	Level of Assignment			Primarily Teach Math/ Science	High Access to Tech.
		Elementary	Middle/ Jr. High	Sr. High		
	%	%	%	%	%	%
Familiar with Internet	22	15	26	30	36	33
Have Access to Internet at School	4	2	4	7	4	14
Number of Interviews	(1206)	(632)	(282)	(329)	(101)	(183)

Computer Software and Other Media

Considering the major categories of software and other electronic media used for teaching-related work, word-processing software is most universal: Nearly four in five teachers (79%) have ever used word-processing software for their job, either at home or at school. A smaller majority (56%) have ever used graphics software. About four in ten teachers make use of software designed to calculate student grades (43%) and spreadsheet software (39%).

Roughly one-fourth of teachers report having used each of the following high-tech computer technologies: instructional laser discs or videodiscs (27%), CD-ROM discs (25%), and hypermedia or multimedia software (23%). Of all the software and other instructional media tested, teachers least often report having used statistical packages (13%).

As shown in the following table, there is substantial variation according to the teacher's primary subject area. Those teaching math or science are more likely to use both number-related and graphics software.

TABLE N

Computer Software and Other Technologies Used:

	Total	Primary Teaching Assignment: Gen'l Elem.	Basic Skills	Math/ Science	Eng./Lang. Soc. Stud.
	%	%	%	%	%
For Teaching-related Work (School or Home):					
Word Processing software	79	77	75	85	83
Graphics software	56	57	57	60	47
Software for calculating student grades	43	37	47	70	46
Spreadsheet software	39	34	43	61	37
Instructional laser discs or videodiscs	27	26	24	31	34
CD-ROM discs	25	25	27	29	33
Hypermedia or multimedia software	23	23	26	32	21
Statistical packages	13	10	9	25	19
Number of Interviews	(1206)	(649)	(117)	(101)	(128)

Teacher Perceptions of Importance of Technology

Teachers differ in their opinions of which classroom technologies they need to do their job. Only one technology tested is almost universally regarded as essential to effective teaching: photocopying machines with adequate supplies of paper (84%). Nine in ten teachers believe that having access to TV/VCR combinations (95%) and classroom computers.(95%) are important to effective teaching, but fewer than half regard each as essential (46% and 45%, respectively). Telephones in the classroom and access to on-line computer services are generally regarded as important, but not essential.

Fax machines are the only technology tested that most teachers have yet to consider important to their effectiveness. Four in ten (40%) see access to a fax as important or essential, while six in ten (58%) reject this notion.

Not surprisingly, teacher subgroups more likely to have access to various technologies more often consider them essential. For example, computers in the classroom have a special appeal to elementary teachers, who are more likely to have them at their disposal. Fax machines, on the other hand, are of particular interest to teachers in senior high schools, the group most likely to have access to such equipment at the school site.

Opinion of the importance of computers to teacher effectiveness varies sharply by age. While six in ten teachers under 35 (59%) say classroom computers are essential, only half as many teachers over 55 share this view (29%). Similarly, 31% of the those under 35, compared with 15% of those over 55, say on-line databases and information networks are essential.

Teachers in low-tech school environments may fail to appreciate the role computers can play in the educational process. Only 37% of teachers with low access to technology at school say computers are essential, compared with 46% of those with medium access and 51% of those with high access.

TABLE 0

Importance of Access to Technology:

(Percent "essential")

		Level of Assignment			Access to Technology		
	Total	Elementary	Middle/ Jr. High	Sr. High	High	Medium	Low
	%	%	%	%	%	%	%
Photocopying machines and adequate supplies of paper at school	84	84	85	85	84	84	86
TV and VCR for classroom use	46	46	45	47	47	47	43
Computers in the classroom	45	50	41	40	51	46	37
Their own telephones at school	31	31	30	29	33	30	31
On-line computer networks and databases at the school site	24	25	18	29	30	23	23
Fax machines at the school site	7	6	4	10	10	6	5
Number of Interviews	(1206)	(632)	(282)	(329)	(183)	(806)	(217)

TABLE 0 -- Continued

	Total %	Age: Under 35 %	35-44 %	45-54 %	55+ %
Photocopying machines and adequate supplies of paper at school	84	82	85	85	82
TV and VCR for classroom use	46	47	46	46	43
Computers in the classroom	45	59	49	41	29
Their own telephones at school	31	26	30	32	29
On-line computer networks and databases at the school site	24	31	24	24	15
Fax machines at the school site	7	6	5	7	9
Number of Interviews	(1206)	(187)	(416)	(464)	(127)

Unsatisfied Technological Needs

In this survey, sizable proportions of teachers reported not having access to technologies they consider essential to do their job effectively. The most widespread unsatisfied technological needs: TVs and VCRs for classroom use (31%) and personal telephones (24%), followed by on-line computer services (18%), classroom computers (16%) and photocopiers (12%). Not surprisingly, very few teachers (4%) say that lack of access to a fax machine puts them at a significant disadvantage. (NOTE: Each of these percentages are based on combined responses to two or more survey questions.)

As shown in the following table, the biggest shortfalls in essential technology are found in large city schools and in low-income school districts. Three in ten (28%) teachers in large cities, compared with only 11% in the suburbs, see themselves disadvantaged because of inadequate access to a photocopier.

Interestingly, teachers in more affluent and more technologically advanced schools are as likely as those in low income, low tech schools to see their effectiveness suffering from lack of a classroom TV/VCR.

TABLE P

Technologies Considered Essential, but Personally Lacking Access to:

	TV/ VCR %	Own Telephone %	On-line Networks %	Classroom Computer %	Photo-Copier %	Fax Machine %	N
Total	31	24	18	16	12	4	(1206)
Level of Assignment							
Elementary	32	27	19	14	15	4	(632)
Middle/ Jr. High	28	23	14	20	8	1	(282)
Senior High	30	19	19	17	8	4	(329)
Size of Community							
Large city	38	30	19	18	28	4	(141)
Suburb	33	25	18	14	11	4	(282)
Small city/ town	26	23	16	15	10	3	(491)
Rural area	33	22	19	20	7	3	(287)
Community Served							
Upper/high income	32	23	14	18	7	3	(333)
Lower middle income	29	22	17	15	12	3	(570)
Low income	33	28	25	18	17	6	(246)
Access to Technology							
High	28	16	7	10	6	2	(183)
Medium	33	24	19	14	11	4	(806)
Low	25	28	22	28	20	4	(217)

Technology and Education Quality

Schools that provide teachers with more access to technology are associated with significantly higher ratings for education quality. Six in ten teachers (58%) in high-tech environments, compared with only a third (33%) of those in low tech environments, rate the quality of education in their school as excellent. High-tech schools are also associated with better communication between teachers and parents and more interest in learning by students. Of course, money is a key factor in the equation -- higher tech schools also tend to have better facilities and, in general, provide more resources for classroom instruction.

TABLE Q

Ratings of Experience at School:

(Percent "excellent")

		Access to Technology		
	Total %	High %	Medium %	Low %
Quality of education at your own school	45	58	45	33
Condition of buildings at your school site	31	40	31	22
Quality of communication between you and parents of your students	27	28	29	20
Resources and support for classroom instruction at your school	25	38	24	17
Your student's interest in learning	19	22	19	14
Number of Interviews	(1206)	(183)	(806)	(217)

As shown in the following table, access to technology is one of the key variables by which teacher ratings of education quality vary. Education quality ratings are much higher in smaller schools, at the elementary grade level, in high-tech schools and in those where teachers do not believe lack of technology is much of an obstacle to their effectiveness.

TABLE R

Quality of Education at Your School:

	Excellent	Good	Not Good/ Poor	Number of Interviews
	%	%	%	
Total	45	53	2	(1206)
Level of Assignment				
Elementary	53	45	2	(632)
Middle/Jr. high	36	60	4	(282)
Senior high	33	63	4	(329)
Sex				
Male	36	59	4	(302)
Female	47	51	2	(904)
Race				
White	46	51	3	(1092)
Minority	29	66	2	(104)
Size of School				
Large	38	57	4	(424)
Medium	47	50	2	(391)
Small	49	49	2	(388)
Community Served				
Upper/high income	62	37	-	(333)
Lower middle income	38	59	3	(570)
Low income	30	62	7	(246)
NEA Region				
Northeast	52	45	3	(205)
Southeast	44	55	1	(149)
Mid-Atlantic	36	61	3	(161)
Mid-West	53	47	*	(282)
Pacific	36	57	5	(245)
West	44	52	4	(164)
Access to Technology at School				
High	58	42	-	(183)
Medium	44	53	3	(806)
Low	33	61	5	(217)
Access to Technology Seen as Obstacle				
Very much	34	61	4	(199)
Somewhat	43	54	3	(317)
Not much	42	55	3	(249)
Not at all	51	47	1	(434)

Technology and Obstacles to Effective Teaching

Teachers in low-tech schools say inadequate technology is as big an obstacle to teaching effectiveness as large classes and inadequate preparation time. About a third (32%) in low-tech schools say lack of access to computers and technology is "very much" an obstacle, similar to the percentages who so identify large classes (31%) and inadequate preparation time (31%) as major obstacles.

Only about one in ten teachers in high-tech schools (9%) regards access to technology as a major obstacle to his or her performance in the classroom. Better technology seems to have the effect of reducing many of the traditional barriers to teaching effectiveness. As shown in the following table, teachers in high-tech schools are less likely to see a variety of potential problems, ranging from overly large classes to difficulties communicating with parents, as major obstacles.

TABLE S

Considered as Obstacle to Effective Teaching:

(Percent "very much")

		Access to Technology		
	Total %	High %	Medium %	Low %
Lack of time to plan and prepare for classes	30	22	31	31
Class sizes that are too large	27	22	27	31
Lack of opportunity to meet/share information with other teachers	18	13	19	22
Lack of access to computers and technology equipment at school	16	9	14	32
Insufficient supplies and instructional materials	13	12	12	17
Problems in communicating with parents	6	3	6	9
Number of Interviews	(1206)	(183)	(806)	(217)

Improvements, Skills and Obstacles

Three in ten teachers (31%) say that computer technology has very much improved their effectiveness on the job. Another four in ten (40%) say their effectiveness has improved somewhat due to computer technology. Consistent with these self-evaluations, perceived improvement varies positively with actual reported access to technology. About half (49%) of teachers in schools with high access to technology feel it has improved their effectiveness very much; only 15% of those in low-tech school settings have similar views.

TABLE T

Effect of Computer Technology

		Access to Technology		
	Total %	High %	Medium %	Low %
Has Improved Teaching Effectiveness:				
Very much	31	49	32	15
Somewhat	40	33	41	40
Not too much	16	12	16	19
Not at all	12	5	10	24
Number of Interviews	(1206)	(183)	(806)	(217)

When asked to describe how computer technology has most improved their effectiveness, teachers credit computers with helping them more efficiently carry out routine teaching duties. Ten percent or more mentioned each of the following benefits:

Word processing/handouts/test preparation/communication (30%)

Record keeping/grades/attendance (19%)

Reinforcing skills/drills/review/follow-up (18%)

Increased efficiency/saves time/better communication (15%)

Access to data/special programs/networks (13%)

Individualized instruction/remediation (10%)

Few teachers today seem intimidated by computers. In fact, the vast majority say they enjoy working with computers very much (43%) or somewhat (39%). When asked to rate their own computer skills relative to those of other teachers, almost two-thirds (65%) give their computer skills a positive rating. One in six (17%) teachers give themselves an excellent rating for ability to work with computers.

Not surprisingly, enjoying computer work and having excellent skills tend to go together. Particularly high scores on these self-assessments are noted for math or science teachers, those teaching in high-tech schools, and those with a PC at home. Men are more likely than women to rate themselves very positively on both enjoyment and skills. Younger teachers are more likely than their older colleagues to say they enjoy working with computers and have excellent computer skills.

TABLE U

	Enjoy Computers		Computer Skills		Number of Interviews
	Very Much %	Somewhat %	Excellent %	Good %	
Total	43	39	17	48	(1206)
Primary Teaching Assignment					
General elementary	40	41	17	49	(649)
Basic skills	40	44	17	42	(117)
Math/Science	60	33	28	51	(101)
English/Language/ Social Studies	40	37	16	44	(128)
Access to Technology:					
High	53	34	27	46	(183)
Medium	44	40	18	48	(806)
Low	32	42	9	46	(217)
Home Computer:					
Yes	53	36	26	53	(647)
No	31	43	8	42	(559)
Sex					
Male	51	31	28	41	(302)
Female	40	42	14	50	(904)
Age					
Under 35	55	38	24	55	(187)
35-44	43	43	18	50	(416)
45-55	40	37	17	46	(464)
55 and older	34	35	7	37	(127)

Teachers see a number of obstacles preventing them from using technology in the classroom. By far the biggest obstacle is lack of funds for computer equipment and software: 46% say budgetary restraints are "very much" an obstacle. Lack of money is cited more often by those in low-tech schools, those in low-income or lower-middle-income districts and by those in the Southeast, Mid-Atlantic and Pacific regions.

Other potential obstacles are deemed less serious by teachers. Roughly one in five says each of the following is a major obstacle: insufficient wiring (21%), lack of good software (19%), unfamiliarity with computers (18%) and lack of adequate technical support (18%). All obstacles are more likely to seriously affect those in lower-income school districts. Insufficient wiring and lack of technical support are more likely to seriously affect those in medium-to-low-tech schools.

TABLE V

Obstacles to Ability to Use Computer Technology:

(Percent saying each is "very much" an obstacle)

	Lack Funds %	Insuff. Wiring %	Lack Software %	Unfamiliar Computers %	Lack Support %	Number of Interviews
Total	46	21	19	18	18	(1206)
Primary Teaching Assignment						
General elementary	45	23	18	20	20	(649)
Basic skills	40	16	13	18	15	(117)
Math/Science	48	15	24	7	13	(101)
English/ Language/ Social Studies	51	16	21	18	18	(128)
Access to Technology:						
High	29	9	14	15	8	(183)
Medium	45	23	21	20	21	(806)
Low	65	26	14	12	14	(217)
Size of Community						
Large city	53	33	29	13	16	(141)
Suburb	43	21	17	16	17	(282)
Small city/town	45	19	16	20	17	(491)
Rural area	48	19	21	19	21	(287)
Community Served						
Upper/higher income	37	15	11	16	13	(333)
Lower middle income	51	23	21	18	18	(570)
Low income	50	27	26	20	25	(246)
NEA Region						
Northeast	36	16	14	16	16	(205)
Southeast	51	21	23	23	16	(149)
Mid-Atlantic	56	21	19	18	25	(161)
Mid-West	39	16	17	17	16	(282)
Pacific	56	31	22	16	17	(245)
West	42	24	24	20	18	(164)

Communication with Parents

Teachers today clearly see room for improvement in teacher-parent communication. Only around one quarter (27%) say they have excellent rapport with their student's parents. Most teachers (63%) feel it is essential for parents and teachers to be able to contact each other during the school day. And hardly any (2%) believe a parent-teacher daytime communication link is unimportant.

While most teachers do not yet regard classroom telephones as essential to effective teaching, there is broad sentiment that making them widely available would improve communication with parents. Seven in ten teachers (71%) feel that having telephones in the classroom would improve communication between teachers and parents to some extent, and more than a third (37%) feel it would bring about major improvement.

Elementary school teachers are most likely to think the opportunity for day-time contact with parents is essential -- but middle school/junior high school teachers are equally likely to say classroom telephones would make a major difference. Those who teach senior high are less likely to say parent-teacher communication is essential and less likely to say having telephones in the classroom would improve communications very much.

TABLE W

Communication Between Teachers and Parents:

	Total %	Level of Assignment: Elementary %	Middle/ Jr. High %	Sr. High %
Importance of Being Able to Contact Each Other During School Day (or Leave Messages):				
Essential	63	69	62	51
Important, but not essential	35	30	36	44
Not important	2	1	2	5
Would Having a Telephone in the Classroom Improve Communication Between Parents and Teachers				
Very much	37	40	39	28
Somewhat	34	31	35	37
Not too much	18	16	15	24
Not at all	10	10	11	10
Number of Interviews	(1206)	(632)	(282)	(329)

Teachers in smaller schools place the greatest importance on being able to have contact with parents during the day. Yet they are least inclined to believe having a telephone in the classroom would improve communication very much. Teachers in large cities both value daytime contact with parents and believe classroom telephones would substantially improve communication.

Older and more experienced teachers express less concern about being able to talk with parents during the school day. Female teachers place far greater emphasis on establishing daytime contact with parents than their male colleagues (68% vs. 46% essential).

Teachers with and without access to telephones have similar attitudes toward the importance of day-time contact with parents. Interestingly, those who do not have a classroom phone, but have access to a private phone elsewhere at school, have the lowest expectations that classroom phones will significantly improve communications. Those who now have them, and those with no access at all to a private phone at school, share similar views about their potential for improving communications.

TABLE X

	Importance of Contact (% "essential")	Telephone Would Improve (% "very much")	Number of Interviews
Total	63	37	(1206)
Primary Teaching Assignment			
General elementary	68	39	(649)
Basic skills	66	30	(117)
Math or science	44	38	(101)
English, language, or social science	54	33	(128)
Size of School			
Large	58	38	(424)
Medium	62	42	(391)
Small	68	30	(388)
Size of Community			
Large city	70	49	(141)
Suburban	64	36	(282)
Small city/town	61	37	(491)
Rural area	61	32	(287)
Years Experience			
Under 10	69	34	(307)
10-19	66	40	(398)
20 and over	55	37	(497)
Sex			
Male	46	33	(302)
Female	68	38	(904)
Age			
Under 35	70	32	(187)
35-44	66	40	(416)
45-54	59	38	(464)
55 and older	48	31	(127)
Now Have Telephone			
In classroom	59	42	(150)
Other access to private phone	62	25	(457)
No access	64	45	(594)

TECHNICAL APPENDIX

SURVEY METHODOLOGY

This survey is based on telephone interviews conducted among a representative sample of 1206 current, regular classroom teacher members of the National Education Association.

Interviews were conducted during the period April 12 - 25, 1993. For results based on the total sample, one can say with 95 percent confidence that the error attributable to sampling and other random effects is plus or minus 3 percentage points. In addition to sampling error, question wording and practical difficulties in conducting surveys can introduce error or bias into the results of opinion polls.

Sample Design: PSRA worked with NEA Research to randomly select current teacher-members of NEA, including K-12 teacher members only.

At least four attempts were made to complete an interview at every sampled telephone number. The calls were staggered over times of day and days of the week to maximize the chances of making a contact with a respondent. In each contacted household, interviewers asked to speak with the specific member listed on the sample. The member was then asked about his or her current teaching position and the level of that position. Members who said they were special education teachers, instructional or resource teachers, and those who reported they were no longer teaching because they were retired or in a different career were excluded from the survey as were members who said they only teach at the college level or above.

Weighting: Non-response in telephone interview surveys produces some known biases in survey-derived estimates because participation tends to vary for different subgroups of the population, and these subgroups may vary also on questions of substantive interest. In order to compensate for these known biases, the sample data for this survey are weighted in analysis.

In this case the only known parameter available from NEA that could be used for weighting is the NEA regional distribution K-12 teacher members.

The table below shows the unweighted sample distribution from this study, and the weighted sample distributions according to membership records.

	NEA Records	Unweighted Sample	Weighted Sample
NEA REGION			
Northeast	20.0%	17.0%	19.9%
Southeast	11.5	12.4	11.4
Mid Atlantic	15.8	13.3	15.9
Mid West	21.2	23.4	21.1
Pacific	20.2	20.3	20.3
West	11.4	13.6	11.4

Statistical Tests: PSRA calculated the effect of the sample weights on the statistical efficiency of the sample design, so that an adjustment can be incorporated into the tests of statistical significance using these data. This so-called "design effect," or "deff," represents the loss in statistical efficiency that results from systematically undersampling (through non-response) parts of the population of interest.

The design effect for this survey is 1.02. The square root of the design effect should be multiplied by the standard error of a statistic in computing tests of statistical significance.

Thus, the formula for computing the 95 percent confidence interval around a percentage is:

1.96 * (sqrt of the design effect) *
sqrt of [(p)(1-p)/unweighted N]

Using this formula, we calculate the 95 percent confidence interval for results around 50% and based on the total sample as plus or minus 3 percentage points

The formula for computing the 95 percent confidence interval around a difference between percentages is:

1.96 * (sqrt of the design effect) * sqrt of [((p)(1-p)/unweighted N1) +
((p2)(1-p2)/unweighted N2)]

Thus, for example, in order to conclude that differences between elementary and junior high teachers are statistically significant at the 95 percent level of confidence for percentages around 50, we would generally need to observe about a 7 percentage point difference between them.

The above formulas may be used to calculate the confidence interval around any percentage or any difference between percentages for the results reported in the tabulation volumes.

Response Rate: The following table summarizes the final disposition of telephone numbers used for this study:

Completed interviews	1206
Incomplete interviews	6
Ineligible -- not a K-12 regular classroom teacher member	463
Unable to interview -- deaf/ language problem	6
Refusals	322
No contact	1382
Business/government numbers	47
Non-working numbers/disconnected numbers	539
Duplicate numbers	5
Wrong numbers	755

Of the 1534 NEA teacher-members contacted who qualified as K-12 teachers with regular classroom assignments, a total of 1212 agreed to be interviewed. Therefore, the cooperation rate among this group was 79 percent. Of the 1212 who agreed to participate in the survey, 1206 finished the entire interview. Therefore, the completion rate was 99 percent.

If an overall response rate is calculated as the percentage of qualified NEA teacher-members contacted who completed the survey, that figure is 78%.

THE ACCESS TO TECHNOLOGY AT SCHOOL SCALE

An "Access to Technology at School Scale," based on a series of questions about the availability of various technology equipment, was created for analytical purposes. In this additive scale, a respondent received one point for having access to each of the following:

1. Telephone in classroom (Q.8, code 1)
2. Photocopier access at school (Q.15, code 2 or 3)
3. Fax access at school (Q.22, code 1)
4. TV set access at school (Q.24, code 1 or 2)
5. VCR access at school (Q.25, code 1,2)
6. Cable TV access at school (Q.26, code 1,2)
7. Computer access at school (Q.30, code 1,2)
8. Computer access in own classroom (Q.30, code 1)
9. Modem access (Q.35, code 1 or 2)
10. Access to databases/networks (code 1 in Q 36a, 36b, 36c, 36d, 38 or 40)

The range of possible scores for this scale ranged from zero to 10. For tabulations and analysis, those with scores of 8 through 10 were defined as having high access to technology (183 respondents, 15% of the total weighted sample). Medium access was defined as scores of 5 through 7 (800 respondents, 67% of the total weighted sample). Low access was defined as scores 0 through 4 (164 respondents, 18% of the total weighted sample).

THE QUESTIONNAIRE

50

NEA COMMUNICATIONS STUDY

FINAL QUESTIONNAIRE

Hello, may I please speak with _____. My name is _____ and I'm calling for Princeton Survey Research, an opinion research firm. The National Education Association has asked us to conduct a national survey of teachers to learn more about their experiences in the classroom. Your individual responses will be held in strictest confidence by Princeton Survey Research. No one at NEA will know whether you participated or how you responded.

SCREENERS:

A. To begin, I have some questions about your current teaching position. First, how is your position classified? Are you... **(READ CODES 1-3)**

1 A regular classroom teacher?

2 A special education teacher? or

3 An instructional specialist or resource teacher?

4 OTHER TEACHER (SPECIFY)

5 RETIRED (EX-TEACHER)

6 NOT A TEACHER

(NOTE: IF CODE 2-6 IN SCREENER A, TERMINATE)

B. At what level are you currently assigned -- elementary school, middle school, junior high or senior high? **(ENTER ALL CODES THAT APPLY)**

1 Elementary (includes Kindergarten and pre-K)

2 Middle school (intermediate school)

3 Junior high

4 Senior high

5 College level and above

(NOTE: IF ONLY CODE 5 IN SCREENER B -- COLLEGE LEVEL AND ABOVE -- TERMINATE)

MAIN INTERVIEW:

1. Does one of the following categories happen to describe your <u>current</u> primary teaching assignment? **(READ CODES 1-4. DO NOT ACCEPT MULTIPLE RESPONSES.)**

   1 General Elementary

   2 Basic skills or remedial education

   3 Bilingual education, or

   4 Gifted?

   5 No, none of these

   6 DON'T KNOW/REFUSED

(NOTE: ASK Q.2 IF CODE 5 IN Q.1. CODES 1-4 GO TO Q.3)

2. What is your primary teaching assignment -- that is, in what field or subject area do you teach the most classes? **(READ CATEGORIES IF NECESSARY. DO NOT ACCEPT MULTIPLE RESPONSES)**

   1 Art or Music

   2 Computer Science

   3 English/Language Arts/Reading

   4 Foreign Language (Spanish, French, German, etc.)

   5 Health/Physical Education

   6 Home Economics

   7 Mathematics

   8 Social Studies/Social Sciences (History)

   9 Sciences (Biology, Chemistry, Physics, General or other Sciences)

   10 Other

   11 NO ANSWER

3. Now I have some questions about your experiences at the school where you now teach. Please rate each of the following as excellent, good, not so good or poor. First, how would you rate... **(START WITH ITEM A, THEN ROTATE REMAINING ITEMS)**

	Excellent	Good	Not So Good	Poor	Don't Know
a. The quality of education at your own school	1	2	3	4	5
b. Resources and support for classroom instruction at your school	1	2	3	4	5
c. Your students' interest in learning	1	2	3	4	5
d. The quality of communication between you and the parents of your students	1	2	3	4	5
e. The condition of the buildings at your school site	1	2	3	4	5

4. Next, please tell me how much of an obstacle each of the following is to your own effectiveness in the classroom today. First, how about...**(INSERT ITEM. ROTATE START)**? Is this very much an obstacle, somewhat of an obstacle, not too much of an obstacle or not an obstacle at all for you? **(CONTINUE WITH NEXT ITEM:** How much of an obstacle is **(INSERT ITEM)** -- very much, somewhat, not too much or not at all?)

	Very Much	Some what	Not Too Much	Not At all	Don't Know
a. Class sizes that are too large	1	2	3	4	5
b. Lack of access to computers and technology equipment at school	1	2	3	4	5
c. Insufficient supplies and instructional materials	1	2	3	4	5
d. Problems in communicating with parents	1	2	3	4	5
e. Lack of time to plan and prepare for classes	1	2	3	4	5
f. Lack of opportunity to meet and share information with other teachers	1	2	3	4	5

5. In order to do their job effectively, how important do you think it is that teachers have access to each of the following technology? First, is access to **(INSERT ITEM. ROTATE START)** essential for teachers, important, but not essential or not important? **(CONTINUE WITH NEXT ITEM:** And how important is access to...?)

a. Their own telephones at school

b. Photocopying machines and adequate supplies of paper at school

c. Fax machines at the school site

d. A TV and VCR for classroom use

e. Computers in the classroom

f. On-line computer networks and databases at the school site

1 Essential
2 Important, but not essential
3 Not important
4 DON'T KNOW/REFUSED

6. How important is it that you and the parents of your students are able to contact each other during the school day -- even if only to leave a message? Would you say it is ...(READ CODES 1-3)

1 Essential
2 Important, but not essential or
3 Not important
4 DON'T KNOW/REFUSED

7. If all teachers in your school had telephones in their classrooms, do you think communication between parents and teachers would be improved very much, somewhat, not too much or not at all?

1 Very much
2 Somewhat
3 Not too much
4 Not at all
5 DON'T KNOW/REFUSED

8. Do you have a telephone <u>in your classroom</u> that can be used to make outside calls?

1 Yes -- **ASK Q. 9, THEN GO TO Q.15**

2 No -- **GO TO Q.10**

3 DON'T KNOW/REFUSED -- **GO TO Q. 10**

9. **IF HAVE A PHONE IN CLASSROOM:** Does this telephone in your classroom have a voice mail communications system?

1	Yes	
2	No	-- **GO TO Q. 15**
3	DON'T KNOW/REFUSED	

IF NO PHONE IN CLASSROOM (CODE 2 IN Q.8). ASK Q'S 10-14:

10. At your school site, where is the telephone you use most often to make outside calls? Is it in...**(READ CODES 1-5) (NOTE: IF RESPONDENT CLAIMS NOT TO USE A PHONE AT SCHOOL, ASK: Then, where is the <u>closest</u> phone at school that you could use?)**

1 The school office -- **GO TO Q. 12**

2 The faculty lounge -- **GO TO Q. 12**

3 Your own office -- **GO TO Q. 12**

4 A co-worker's office or classroom, or is it... -- **GO TO Q. 12**

5 In another location at school? -- **ASK Q. 11**

6 NO PHONE AT SCHOOL SITE (VOL.) -- **GO TO Q. 15**

7 DON'T KNOW/REFUSED -- **GO TO Q. 12**

11. **IF PHONE IS ANOTHER LOCATION (CODE 5 IN Q.10):** And where is that? (OPEN END)

_____

99 DON'T KNOW/REFUSED

12. Is the telephone you use most often a pay phone?

1 Yes

2 No

3 DON'T KNOW/REFUSED

13. How often do you use this telephone? Would you say...(READ)

1 Several times a day

2 Several times a week

3 About once a week, or

4 Less than once a week?

5 DON'T KNOW/REFUSED

14. Is this telephone located in a place which allows for private conversations?

1 Yes

2 No

3 DON'T KNOW/REFUSED

ASK ALL:

15. Which of the following duplicating processes are now available to you at school? (READ)

1 Mimeograph or "ditto" machines -- **GO TO Q. 17a**

2 Photocopying or "xerox" machines -- **GO TO Q. 17a**

3 Both, or -- **ASK Q.16**

4 Neither? -- **GO TO Q. 22**

5 DON'T KNOW/REFUSED -- **GO TO Q. 22**

16. **IF BOTH DUPLICATING PROCESSES ARE AVAILABLE (CODE 3 IN Q. 15):** Which do you use most often?

1 Mimeograph or "ditto" machines

2 Photocopying or "xerox" machines

3 BOTH EQUALLY (VOLUNTEERED)

4 DON'T KNOW/REFUSED

IF HAVE ACCESS TO DUPLICATING PROCESSES (CODES 1-3 IN Q.15), ASK Q'S 17a-21:

17a. Does a teacher's aide, secretary or volunteer ever assist you in duplicating classroom materials?

1 Yes

2 No -- **GO TO Q.18**

3 DON'T KNOW/REFUSED -- **GO TO Q.18**

17b. **IF EVER ASSISTED IN DUPLICATING MATERIALS (CODE 1 IN Q.17A):** How much of your classroom duplicating is handled by assistants...**(READ CODES 1-5)**

1 Nearly all of it

2 More than half

3 About half

4 Less than half, or

5 Hardly any of it?

6 DON'T KNOW/REFUSED

18. In general, is waiting time to use a copying machine at school a problem for you, or not?

1 Yes

2 No

3 DON'T KNOW/REFUSED

19. Does the school place a limit on amount of paper you can use in duplicating classroom materials?

1 Yes

2 No -- **GO TO Q.22**

3 DON'T KNOW/REFUSED -- **GO TO Q. 22**

20. **IF SCHOOL PLACES A LIMIT ON PAPER (CODE 1 IN Q.19):** Considering your own duplicating needs for classes, would you say your paper supply is adequate or inadequate?

1 Adequate

2 Inadequate

3 IT DEPENDS - VOL.

4 DON'T KNOW/REFUSED

21. **IF SCHOOL PLACES A LIMIT ON PAPER (CODE 1 IN Q.19):** As a result of the school's limit on paper, have you ever used your own money to purchase paper or copied materials outside school for classroom use?

1 Yes

2 No

3 DON'T KNOW/REFUSED

ASK ALL:

22. Do you now have access to a fax machine at your school site?

1 Yes

2 No -- **GO TO Q.24**

3 DON'T KNOW/REFUSED -- **GO TO Q. 24**

23. **IF HAVE ACCESS TO A FAX AT SCHOOL (CODE 1 IN Q.22):** Is there a limit placed on your use of the fax machine at school?)

1 Yes

2 No

3 DON'T KNOW/REFUSED

24. Do you now have a television set in your classroom? (IF NO: Do you now have access to a television set at school for instructional use?)

1 Yes, TV in classroom

2 Yes, other access to TV at school

3 No, neither

4 DON'T KNOW/REFUSED

25. Do you now have a VCR in your classroom? (IF NO: Do you now have access to a VCR at school for instructional use?)

1 Yes, VCR in classroom

2 Yes, other access to VCR at school

3 No, neither

4 DON'T KNOW/REFUSED

26. Do you now have cable TV service in your classroom? (IF NO: Do you now have access to cable TV service at school for instructional use?)

1 Yes, cable TV in classroom

2 Yes, other access to cable TV at school

3 No, neither

4 DON'T KNOW/REFUSED

27. In your school today, have computers been integrated into the classroom learning process -- or are they located only "off-site" and treated as a separate area of instruction?

1 Computers integrated into the classroom

2 Computers located "off site" - separate area of instruction

3 DON'T KNOW/REFUSED

28. Would you say computer technology has improved your own effectiveness as a teacher very much, somewhat, not too much or not at all?

1 Very much

2 Somewhat

3 Not too much -- **GO TO Q. 30**

4 Not at all -- **GO TO Q. 30**

5 DON'T KNOW/REFUSED -- **GO TO Q. 30**

29. **IF COMPUTER TECHNOLOGY HAS IMPROVED EFFECTIVENESS (CODES 1-2 IN Q.28):** In what way has computer technology <u>most</u> improved your effectiveness as a teacher? (OPEN END)

_____

_____

99 DON'T KNOW/REFUSED

30. Do you now have access to a computer in your classroom? (IF NO: Do you now have access to a computer located at school?)

1 Yes, computer in classroom -- **GO TO Q. 32**

2 Yes, other access to computer at school -- **ASK Q.31**

3 No, neither -- **GO TO Q.32**

4 DON'T KNOW/REFUSED -- **GO TO Q. 32**

31. **IF HAVE OTHER ACCESS TO A COMPUTER AT SCHOOL (CODE 2 IN Q.30):** In general, is waiting time to use a computer at school a problem for you, or not?

1 Yes

2 No

3 IT DEPENDS - VOL.

4 DON'T KNOW/REFUSED

32. Do you now have access to a computer at home?

1 Yes

2 No

3 DON'T KNOW/REFUSED

33. Which of the following, if any, have you ever used for teaching-related work, either at school or at home? First, have you ever used...**(READ AND ROTATE)?**

a. Word processing software

b. Graphics software

c. Spreadsheet software

d. Statistical packages

e. Software designed for calculating student grades

f. Hypermedia or multimedia software

g. CD-ROM (pronounced "see-dee RAHM") discs

h. Instructional laser discs or videodiscs

1 Used at school or home
2 Have not used
3 DON'T KNOW/REFUSED

34. How many computers, if any, are there in your classroom today that can be used by your students?

RECORD ACTUAL NUMBER _____

DON'T KNOW/REFUSED 99

35. Do you now have a computer with a modem in your classroom that can be used to transmit or receive information? (IF NO: What about access to a computer with a modem located at school?)

1 Yes, computer with modem in classroom

2 Yes, other access to computer with modem at school

3 No, neither **-- GO TO Q.37**

4 DON'T KNOW/REFUSED **-- GO TO Q. 37**

36. **IF HAVE ACCESS TO A MODEM (CODES 1-2 IN Q.35)** To which, if any, of the following on-line computer services do you now have access at school? Do you have access to...**(READ AND ROTATE ITEMS)**

a. CompuServ (KOM-pyoo-surv)

b. America-On-Line

c. Prodigy (PROD-ih-jee)

d. Dialog (DIE-uh-log)

1 Yes, have access
2 No, don't have access
3 Don't know if access available

37. Have you ever exchanged instructional information with a teacher at another school via computer modem or fax? (IF YES: Have you done this from school, from home or from both places?)

1 Yes, from school

2 Yes, from home

3 Yes, from both places

4 No

5 DON'T KNOW/REFUSED

38. Have you ever participated in a learning network at school, such as The AT&T Learning Network or The National Geographic Society's Kids' Network?

1 Yes

2 No

3 DON'T KNOW/REFUSED

39. Are you familiar with Internet -- the computer network of networks?

1 Yes

2 No **-- GO TO Q.41**

3 DON'T KNOW/REFUSED **-- GO TO Q. 41**

40. **IF EVER HEARD OF INTERNET (CODE 1 In Q.39)** Do you now have access to Internet at school?

1 Yes

2 No

3 DON'T KNOW/REFUSED

41. Are you, with any of your students, now engaged in an on-line collaborative teaching or distance learning?

1 Yes

2 No

3 DON'T KNOW/REFUSED

42. Are there any other forms of technology that you are now using with your students that I haven't mentioned in this interview?

1 Yes

2 No -- **GO TO Q.44**

3 DON'T KNOW/REFUSED -- **GO TO Q. 44**

43. Could you tell me briefly what they are? (OPEN-END)

_____

_____

99 DON'T KNOW/REFUSED

44. Please tell me how much of an obstacle each of the following is to your ability to use computer technology for classroom instruction. First, how about...**(INSERT ITEM. ROTATE START)**? Is this very much an obstacle, somewhat of an obstacle, not too much of an obstacle or not an obstacle at all for you? **(CONTINUE WITH NEXT ITEM:** How much of an obstacle is **(INSERT ITEM)** -- very much, somewhat, not too much or not at all?)

ASK ITEMS B, D AND E ONLY OF THOSE WITH COMPUTERS AT SCHOOL (CODE 1,2 IN Q.30)

a. Lack of funds for computer equipment and software

b. Lack of technical support **(FILTERED -- SEE ABOVE)**

c. Insufficient electrical wiring in the building

d. Unfamiliarity with computers or lack of computer training **(FILTERED -- SEE ABOVE)**

e. Lack of good computer software for instructional use **(FILTERED -- SEE ABOVE)**

1 Very much an obstacle
2 Somewhat of an obstacle
3 Not too much of an obstacle
4 Not an obstacle at all
5 DON'T KNOW/REFUSED

45. How much do you, yourself, enjoy working with computers? Would you say you enjoy working with computers very much, somewhat, not too much or not at all?

1 Very much

2 Somewhat

3 Not too much

4 Not at all

5 DON'T KNOW/REFUSED

46. Compared with other teachers in your school, how would you rate your own computer skills -- would you rate them as excellent, good, not so good or poor?

1 Excellent

2 Good

3 Not so good

4 Poor

5 DON'T KNOW/REFUSED

47. How would you describe the community in which you are currently employed as a teacher ? Is it a...**(READ CODES 1-5)**

1 Large city

2 Suburb of a large city

3 Small city

4 Town, or

5 Rural area?

6 DON'T KNOW/REFUSED

48. Is the community served by your school district mostly high income, upper middle income, lower middle income or low income?

1 Mostly high income

2 Upper middle income

3 Lower middle income

4 Low income

5 DON'T KNOW/REFUSED

49. About how many students, in total, attend school at the location where you now teach? **(IF NECESSARY SAY:** Just your best estimate.)

RECORD ACTUAL NUMBER _____

DON'T KNOW/REFUSED 9999

50. Including the current school year, how many years have you been teaching on a full-time basis?

RECORD ACTUAL NUMBER _____

DON'T KNOW/REFUSED 99

51. What is your age?

RECORD ACTUAL AGE _____

DON'T KNOW/REFUSED 99

52. Are you, yourself, of Hispanic origin or descent, such as Mexican, Puerto Rican, Cuban or other Spanish background?

1 Yes

2 No

3 DON'T KNOW/REFUSED

53. What is your race? Are you ... **(READ CODES 1-5)**

1 White

2 Black

3 American Indian or Alaska native

4 Asian or Pacific Islander, or

5 Some other race?

6 REFUSED

IF RESPONDENT VOLUNTEERS HISPANIC, ASK: Do you think of yourself as a white Hispanic or a black Hispanic? **THEN CODE AS WHITE OR BLACK.**

54. **RECORD SEX OF RESPONDENT**

1 Male

2 Female

That completes the interview. Thank you very much for your time. Have a nice evening.

TOP-LINE QUESTIONNAIRE

55 76

NEA COMMUNICATIONS STUDY

FINAL TOP-LINE QUESTIONNAIRE -- MAY 20, 1993

N = 1,206
Dates of Interviewing = April 12 - 25, 1993
Margin of error = ± 3

Hello, may I please speak with _____. My name is _____ and I'm calling for Princeton Survey Research, an opinion research firm. The National Education Association has asked us to conduct a national survey of teachers to learn more about their experiences in the classroom. Your individual responses will be held in strictest confidence by Princeton Survey Research. No one at NEA will know whether you participated or how you responded.

B. At what level are you currently assigned -- elementary school, middle school, junior high or senior high? **(ENTER ALL CODES THAT APPLY)**

52 Elementary (includes Kindergarten and pre-K)

16 Middle school (intermediate school)

8 Junior high

28 Senior high

1. Does one of the following categories happen to describe your <u>current</u> primary teaching assignment?

2. What is your primary teaching assignment -- that is, in what field or subject area do you teach the most classes?

54	General Elementary
10	Basic skills or remedial education
2	Bilingual education, or
5	Gifted?
3	Art or Music
*	Computer Science
5	English/Language Arts/Reading
2	Foreign Language (Spanish, French, German, etc.)
2	Health/Physical Education
1	Home Economics
4	Mathematics
4	Social Studies/Social Sciences (History)
4	Sciences (Biology, Chemistry, Physics, General or other Sciences)
4	Other
*	No answer
100	

3. Now I have some questions about your experiences at the school where you now teach. Please rate each of the following as excellent, good, not so good or poor. First, how would you rate...

	Excellent	Good	Not So Good	Poor	Don't Know
a. The quality of education at your own school	45	53	2	*	*=100
b. Resources and support for classroom instruction at your school	25	52	19	4	*=100
c. Your students' interest in learning	19	62	15	3	1=100
d. The quality of communication between you and the parents of your students	27	56	13	3	1=100
e. The condition of the buildings at your school site	31	45	16	8	*=100

4. Next, please tell me how much of an obstacle each of the following is to <u>your own effectiveness</u> in the classroom today. First, how about...**(INSERT ITEM. ROTATE START)**? Is this <u>very much</u> an obstacle, <u>somewhat</u> of an obstacle, <u>not too much</u> of an obstacle or <u>not</u> an obstacle <u>at all</u> for you?

	Very Much	Some what	Not Too Much	Not At all	DK
a. Class sizes that are too large	27	28	18	27	*=100
b. Lack of access to computers and technology equipment at school	16	26	21	36	1=100
c. Insufficient supplies and instructional materials	13	32	27	28	*=100
d. Problems in communicating with parents	6	27	35	32	*=100
e. Lack of time to plan and prepare for classes	30	36	17	17	*=100
f. Lack of opportunity to meet and share information with other teachers	18	35	21	26	*=100

5. In order to do their job effectively, how important do you think it is that teachers have access to each of the following technology? First, is access to **(INSERT ITEM. ROTATE START)** essential for teachers, important, but not essential or not important?

	Essential	Important but not Essential	Not Important	Don't Know
a. Their own telephones at school	31	44	25	*=100
b. Photocopying machines and adequate supplies of paper at school	84	16	*	0=100
c. Fax machines at the school site	7	33	58	2=100
d. A TV and VCR for classroom use	46	49	5	*=100
e. Computers in the classroom	45	50	4	1=100
f. On-line computer networks and databases at the school site	24	60	13	3=100

6. How important is it that you and the parents of your students are able to contact each other during the school day -- even if only to leave a message? Would you say it is ...

63	Essential
35	Important, but not essential or
2	Not important
*	DON'T KNOW
100	

7. If all teachers in your school had telephones in their classrooms, do you think communication between parents and teachers would be improved very much, somewhat, not too much or not at all?

37	Very much
34	Somewhat
18	Not too much
10	Not at all
1	DON'T KNOW
100	

8. Do you have a telephone <u>in your classroom</u> that can be used to make outside calls?

12	Yes	
88	No	
0	DON'T KNOW	
100		

9. **IF HAVE A PHONE IN CLASSROOM:** Does this telephone in your classroom have a voice mail communications system?

9	Yes	
83	No	**-- GO TO Q. 15**
8	DON'T KNOW	
100		

(n=150)

QUESTIONS 10 - 14 ASKED OF PEOPLE WITH NO PHONE IN CLASSROOM N=1,056

10. At your school site, where is the telephone you use most often to make outside calls? Is it in... **(NOTE: IF RESPONDENT CLAIMS NOT TO USE A PHONE AT SCHOOL, ASK: Then, where is the <u>closest</u> phone at school that you could use?) IF PHONE IS ANOTHER LOCATION:** And where is that?

42	The school office
27	The faculty lounge
3	Your own office
6	A co-worker's office or classroom, or is it in

Another location at school ...

2	Nurse's office
2	Common work area/work room
4	Library/Media center
2	Conference room/seminar room
2	Closet/storage room
1	Guidance counselor's office/guidance office
1	Photocopy room
2	Main hallway/hallway
2	Department office
*	Phone room
1	Other special use room
2	Other
1	Don't know
100	

12. Is the telephone you use most often a pay phone?

2	Yes
98	No
0	DON'T KNOW
100	

13. How often do you use this telephone? Would you say...(READ)

21	Several times a day
57	Several times a week
14	About once a week, or
8	Less than once a week?
*	DON'T KNOW
100	

14. Is this telephone located in a place which allows for private conversations?

44	Yes
56	No
*	DON'T KNOW
100	

ASK ALL:

15. Which of the following duplicating processes are now available to you at school?

16. **IF BOTH DUPLICATING PROCESSES ARE AVAILABLE:** Which do you use most often?

3	Mimeograph or "ditto" machines
35	Photocopying or "xerox" machines
62	Both, or
11	Use mimeograph or "ditto" most often
46	Use photocopying or "xerox" most often
4	Use both equally
1	Don't know
*	Neither?
0	DON'T KNOW
100	

QUESTIONS 17a - 21 ASKED OF THOSE WITH ACCESS TO DUPLICATING PROCESSES
N=1,201

17a. Does a teacher's aide, secretary or volunteer ever assist you in duplicating classroom materials?

17b. **IF EVER ASSISTED IN DUPLICATING MATERIALS**
How much of your classroom duplicating is handled by assistants...

60	Yes
19	Nearly all of it
9	More than half
9	About half
9	Less than half, or
13	Hardly any of it?
1	Don't know how much handled by assistants
40	No
*	DON'T KNOW
100	

18. In general, is waiting time to use a copying machine at school a problem for you, or not?

38	Yes
62	No
*	DON'T KNOW
100	

19. Does the school place a limit on amount of paper you can use in duplicating classroom materials?

20. **IF SCHOOL PLACES A LIMIT ON PAPER:** Considering your own duplicating needs for classes, would you say your paper supply is adequate or inadequate?

35 Yes
- 24 Adequate
- 10 Inadequate
- 1 IT DEPENDS - VOL.

64 No

1 DON'T KNOW
100

21. As a result of the school's limit on paper, have you ever used your own money to purchase paper or copied materials outside school for classroom use?

19 Yes

16 No

64 No limit on school paper use

1 DON'T KNOW
100

ASK ALL:

22. Do you now have access to a fax machine at your school site?

23. **IF HAVE ACCESS TO A FAX AT SCHOOL:** Is there a limit placed on your use of the fax machine at school?)

28 Yes
- 5 Limit placed on use of fax at school
- 14 No limit placed on use of fax at school
- 9 Don't know about limits on fax use

69 No

3 DON'T KNOW
100

24. Do you now have a television set in your classroom? (IF NO: Do you now have <u>access</u> to a television set at school for instructional use?)

41 Yes, TV in classroom

54 Yes, other access to TV at school

5 No, neither

* DON'T KNOW

100

25. Do you now have a VCR in your classroom? (IF NO: Do you now have access to a VCR at school for instructional use?)

24 Yes, VCR in classroom

74 Yes, other access to VCR at school

2 No, neither

* DON'T KNOW

100

26. Do you now have cable TV service in your classroom? (IF NO: Do you now have access to cable TV service at school for instructional use?)

34 Yes, cable TV in classroom

28 Yes, other access to cable TV at school

34 No, neither

4 DON'T KNOW

100

27. In your school today, have computers been integrated into the classroom learning process -- or are they located only "off-site" and treated as a separate area of instruction?

49 Computers integrated into the classroom

48 Computers located "off site" - separate area of instruction

3 DON'T KNOW

100

28. Would you say computer technology has improved your own effectiveness as a teacher very much, somewhat, not too much or not at all?

31	Very much
40	Somewhat
16	Not too much
12	Not at all
1	DON'T KNOW
100	

29. **IF COMPUTER TECHNOLOGY HAS IMPROVED EFFECTIVENESS:** In what way has computer technology most improved your effectiveness as a teacher? (OPEN END)

19	Record keeping/grades/attendance
31	Word processing/handouts/test preparation/communication
10	Individualized instruction/remediation
17	Reinforcing skills/drills/review/follow-up
6	Motivational tool/students more interested
13	Access to data/special programs/networks
14	Increased efficiency/saves time/better organization
7	Encourages/helps student writing/publishing
8	Introduces technology/keep up with technological advancements
3	Graphics
9	Aids in teaching/learning (general)
1	Other
4	Don't know

n=851

30. Do you now have access to a computer in your classroom? (IF NO: Do you now have access to a computer located at school?)

52	Yes, computer in classroom
36	Yes, other access to computer at school
12	No, neither
*	DON'T KNOW
100	

31. **IF HAVE OTHER ACCESS TO A COMPUTER AT SCHOOL:** In general, is waiting time to use a computer at school a problem for you, or not?

28 Yes

68 No

3 IT DEPENDS - VOL.

1 DON'T KNOW
100
n=434

32. Do you now have access to a computer at home?

54 Yes

46 No

0 DON'T KNOW
100

33. Which of the following, if any, have you ever used for teaching-related work, either at school or at home? First, have you ever used...

% saying yes

79 Word processing software
56 Graphics software
39 Spreadsheet software
13 Statistical packages
43 Software designed for calculating student grades
23 Hypermedia or multimedia software
25 CD-ROM discs
27 Instructional laser discs or videodiscs

34. How many computers, if any, are there in your classroom today that can be used by your students?

7 More than five
6 Three to five
7 Two
34 One
41 None
5 DON'T KNOW
100

35. Do you now have a computer with a modem in your classroom that can be used to transmit or receive information? (IF NO: What about access to a computer with a modem located at school?)

4	Yes, computer with modem in classroom
35	Yes, other access to computer with modem at school
54	No, neither
7	DON'T KNOW
100	

36. **IF HAVE ACCESS TO A MODEM:** To which, if any, of the following on-line computer services do you now have access at school? Do you have access to...

		Yes, access	No, don't have access	Don't know about access
a.	CompuServ	14	45	41=100
b.	America-On-Line	7	47	46=100
c.	Prodigy	19	45	36=100
d.	Dialog	9	48	43=100

n=477

37. Have you ever exchanged instructional information with a teacher at another school via computer modem or fax? (IF YES: Have you done this from school, from home or from both places?)

8	Yes, from school
1	Yes, from home
1	Yes, from both places
90	No
*	DON'T KNOW
100	

38. Have you ever participated in a learning network at school, such as The AT&T Learning Network or The National Geographic Society's Kids' Network?

6	Yes
93	No
1	DON'T KNOW
100	

39. Are you familiar with Internet -- the computer network of networks?

40. **IF EVER HEARD OF INTERNET:** Do you now have access to Internet at school?

22	Yes
4	Yes, have access
15	No, don't have access
3	Not sure about access
77	No
1	DON'T KNOW
100	

41. Are you, with any of your students, now engaged in an on-line collaborative teaching or distance learning?

4	Yes
95	No
1	DON'T KNOW
100	

42. Are there any other forms of technology that you are now using with your students that I haven't mentioned in this interview?

43. **IF YES:** Could you tell me briefly what they are? (OPEN-END)

14	Yes
3	Video recording technology/camcorders
2	Graphic calculators
2	Traditional AV technology (overheads, 16mm film, filmstrips, etc.)
2	Tape recorders
2	Computer programs
1	Calculators
1	Computer networks/tie-ins
1	Other digital technology (scanners, CDs, etc)
*	Television
*	Laser technology
*	Electronic speller
1	Other
86	No
*	DON'T KNOW
100	

44. Please tell me how much of an obstacle each of the following is to your ability to use computer technology for classroom instruction. First, how about...**(INSERT ITEM. ROTATE START)**? Is this very much an obstacle, somewhat of an obstacle, not too much of an obstacle or not an obstacle at all for you?

	Very much obst.	Some-what obst.	Not too much obst.	Not an obst.	Doesn't apply, no comp.	DK
a. Lack of funds for computer equipment and software	46	28	10	14	NA	2=100
b. Lack of technical support	18	28	14	26	12	2=100
c. Insufficient electrical wiring in the building	21	16	12	45	NA	6=100
d. Unfamiliarity with computers or lack of computer training	18	35	15	19	12	1=100
e. Lack of good computer software for instructional use	19	29	15	23	12	2=100

45. How much do you, yourself, enjoy working with computers? Would you say you enjoy working with computers very much, somewhat, not too much or not at all?

43	Very much
39	Somewhat
11	Not too much
6	Not at all
1	DON'T KNOW
100	

46. Compared with other teachers in your school, how would you rate your own computer skills -- would you rate them as excellent, good, not so good or poor?

17	Excellent
48	Good
23	Not so good
11	Poor
1	DON'T KNOW
100	

47. How would you describe the community in which you are currently employed as a teacher ? Is it a...

11	Large city
24	Suburb of a large city
21	Small city
20	Town, or
24	Rural area?
*	DON'T KNOW
100	

48. Is the community served by your school district mostly high income, upper middle income, lower middle income or low income?

5	Mostly high income
23	Upper middle income
47	Lower middle income
20	Low income
5	DON'T KNOW
100	

49. About how many students, in total, attend school at the location where you now teach? **(IF NECESSARY SAY:** Just your best estimate.)

16	1,200 or more
7	1,000 to 1199
12	800 to 999
22	600 to 799
22	400 to 599
17	200 to 399
4	0 to 199
*	DON'T KNOW
100	

50. Including the current school year, how many years have you been teaching on a full-time basis?

11	Under five years
14	5 to 9 years
33	10 to 19 years
42	20 or more years
*	DON'T KNOW
100	

51. What is your age?

16	Under 35
34	35 to 44
39	45 to 54
10	55 to 64
*	65 or older
1	REFUSED
100	

52. Are you, yourself, of Hispanic origin or descent, such as Mexican, Puerto Rican, Cuban or other Spanish background?

3	Yes
97	No
*	DON'T KNOW
100	

53. What is your race? Are you ...

92	White
4	Black
1	American Indian or Alaska native
1	Asian or Pacific Islander, or
1	Some other race?
1	REFUSED
100	

54. **RECORD SEX OF RESPONDENT**

25	Male
75	Female
100	

NEA region:

20	Northeast
12	Southeast
16	Mid-Atlantic
21	Midwest
20	Pacific
11	West
100	